

3. EQUIVALENCIAS

3.1. GIC \Rightarrow AA

$$\begin{array}{ll} \textbf{GIC} & \textbf{AA} \\ G = (N, \Sigma, P, S) & \Rightarrow A = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, \emptyset) \\ & \text{donde } \left\{ \begin{array}{l} Q = \{q_0\} \\ \Gamma = N \cup \Sigma \\ \delta \left\{ \begin{array}{l} \delta(q_0, \varepsilon, A) = \{(q_0, \alpha) / A \rightarrow \alpha \in P\} \\ \delta(q_0, \sigma, \sigma) = \{(q_0, \varepsilon)\} \end{array} \right. \begin{array}{l} \forall A \in N \\ \forall \sigma \in \Sigma \end{array} \\ Z_0 = S \end{array} \right. \end{array}$$

3.2. AA \Rightarrow GIC

AA

$$A = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, \emptyset)$$

GIC

$$G = (N, \Sigma, P, S)$$

$$N = \{S\} \cup \{[p, Z, q] \mid p, q \in Q, Z \in \Gamma\}$$

P :

$$S \rightarrow [q_0, Z_0, q] \quad \forall q \in Q$$

$$(q_1, X_1 X_2 \dots X_m) \in \delta(q, a, Z) \Rightarrow [q, Z, q_{m+1}] \rightarrow a [q_1, X_1, q_2] [q_2, X_2, q_3] \dots [q_m, X_m, q_{m+1}]$$

Ejemplo:

$$A = (\{q_0, q_1\}, \{0, 1\}, \{X, Z_0\}, \delta, q_0, Z_0, \emptyset)$$

$$\delta(q_0, 0, Z_0) = \{(q_0, XZ_0)\}$$

$$\delta(q_0, 0, X) = \{(q_0, XX)\}$$

$$\delta(q_0, 1, X) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, 1, X) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, \varepsilon, X) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, \varepsilon, Z_0) = \{(q_1, \varepsilon)\}$$

Ejercicio propuesto:

$$A = (\{q_0, q_1, q_2\}, \{a, b\}, \{A, B, Z_0\}, \delta, q_0, Z_0, \emptyset)$$

$$\delta(q_0, a, Z_0) = \{(q_1, AZ_0)\}$$

$$\delta(q_0, b, Z_0) = \{(q_1, BZ_0)\}$$

$$\delta(q_0, \varepsilon, Z_0) = \{(q_2, \varepsilon)\}$$

$$\delta(q_1, a, A) = \{(q_1, AA)\}$$

$$\delta(q_1, b, B) = \{(q_1, BB)\}$$

$$\delta(q_1, a, B) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, b, A) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, \varepsilon, Z_0) = \{(q_0, Z_0)\}$$